

BILFINGER

now!



we create

CONNECTED INTO THE FUTURE

Higher productivity, lower costs – our digital experts know how to get there

we can

Taking a careful look:
Drones keep an eye on
offshore platforms

we care

Safe maintenance:
Millions of work hours
without an accident



BILFINGER

BCAP

DIGITAL IN SIX MONTHS

Making plants more effective while reducing costs: The BCAP digital service is making industrial plants ready for the digital age



Spotting errors before they can happen. Münzing Chemie (cover) and Bilfinger Maintenance (on this page) explore the benefits of smart connectivity.



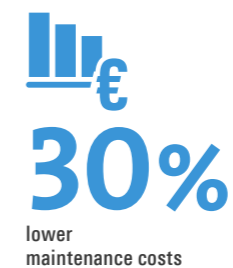
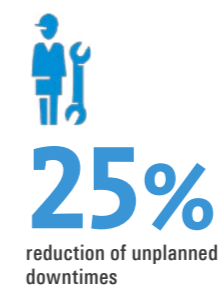
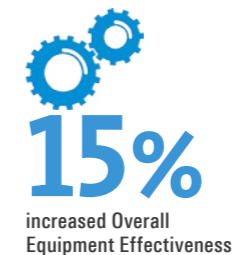
Digitalization as a part of corporate strategy: Tom Blades, CEO of Bilfinger since July 2016.

TOM BLADES, CEO IN A NUTSHELL

“Innovative, holistic, practical: Bilfinger offers a comprehensive range of services for the digitalization of the process industry.

Our services range from consulting over establishing digital connectivity to the analysis and optimization of plants based on intelligent data analysis.

We connect the loose ends and make the future of plants predictable. As an intermediary between industry and IT, we raise the effectiveness of industrial assets to a new level. Take advantage of this added value.”



Let's look at some facts: Brooms are seldom used for housecleaning nowadays. Why? Because for a long time now, vacuum cleaners have been doing a better job. Smart robot vacuum cleaners are even more convenient — and

they're already being used today. The process industry is about to make a similar leap in terms of intelligence and effectiveness, thanks to the digitalization of the operating processes of industrial plants. With BCAP (Bilfinger Connected Asset Performance), we have developed a solution that customers can implement in a quick and easy manner.

NEW INSIGHTS

The idea is to bring together all relevant information. BCAP connects data from engineering, operations and maintenance via a cloud-based platform. This BCAP platform serves as the plant's technical backbone and data center. The data sources include the process control system, production planning, and sensors that assess the plant's status. The connection and analysis of this previously isolated data brings to light completely new insights.

One important result of such analyses is that potential disruptions become easier to predict. That has a positive

effect on maintenance costs. BCAP can reduce maintenance costs by as much as 30 percent. Moreover, the length of unplanned downtimes can be reduced by 25 percent, depending on the industry. At the same time, thanks to smart monitoring, the Overall Equipment Effectiveness (OEE) can be increased by up to 15 percent.

For mid-sized companies in particular, BCAP is a simple and economical solution that enables them to prepare for digitalization within a short period of time. That's because the employed capital generally amortizes within the first year. And we can implement comprehensive elements of BCAP within only six months. That saves time and yields quick results.

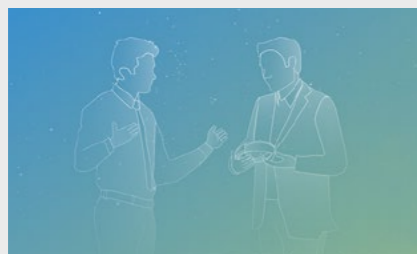
MODULAR STRUCTURE

Our offering covers four phases with a variety of service packages. The services range from consulting to the creation of “digital twins” and the implementation of state-of-the-art dashboards for production and maintenance all the way to “as a service” models of

SHORT AND SIMPLE

WHAT BCAP CAN DO

Bilfinger makes companies fit for digitalization



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Photos: Bilfinger, Stefan Hohloch (Titel); Illustration: Bilfinger; Jochen Stuhmann (Titel)

the cloud-based BCAP platform. These service packages enable customers to connect their plants with a modern industrial Internet of Things in a comprehensive way. The secure connection of the IT systems and the transparent assessments specially tailored to the customer's needs are key components of this solution.

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PILOT PROJECT

HIGHER, FASTER, FURTHER

Thanks to digitalization, midsize companies such as Münzing Chemie are becoming even more efficient

Successful athletes owe their success mainly to the fact that they are never satisfied with what they've already achieved. The situation is similar for many of our customers. The additives manufacturer Münzing Chemie is a good example of that. In 2017, this midsize company partnered with Bilfinger to launch a pilot project focusing on digitalization at its site in Heilbronn. The clear goal is the enhancement of effectiveness.

First, a "digital twin" was created for the existing powder facility. This virtual digital plant brings together all of the plant's relevant technical data and information and makes it digitally accessible with just a few clicks. "This process greatly enhances the quality and timeliness of the data and decreases the complexity of the documentation," says plant manager Dr. Andreas Heidbreder. Two new chemical reactors were digitally planned right from the start.

In parallel, Bilfinger created a cloud-based data pool that included the technical plant details and data

from current operations and maintenance activities. In addition, wireless sensors were installed in order to enable continuous smart real-time monitoring. According to Andreas Heidbreder, "The sensors not only work well but also are easy to integrate."

IMPROVED MONITORING

Through the use of these new technologies, the status monitoring was significantly improved. Analysis of the collected data clearly indicated the areas where efficiency could potentially be boosted. For example, the analyses indicated that before a certain malfunction happens there are already clear indications of the potential for it to occur. With growing experience, problems of this kind become more and more predictable. Heidbreder says that this makes his work easier. "In times when companies like Münzing sometimes have to wait many weeks for certain replacement parts, this system is worth its weight in gold."

Greater efficiency is the goal: Münzing Chemie and Bilfinger are operating a pilot project for digitalization in Heilbronn.



Franz Braun has been the Chief Digital Officer at Bilfinger since March 2017. Prior to that he worked for many years in the maintenance business at Bilfinger, most recently as Managing Director at the company's maintenance branch in Germany.

Mr. Braun, are midsize companies already digitalized?

When it comes to digitalization, many midsize companies still have some way to go. In many cases, a crucial factor is the companies' inability to assess whether the digitalization process would be successful. This hesitation can have fatal effects for the companies, because digitalization offers opportunities for boosting the efficiency of production and maintenance. Companies have to see this competitive advantage and seize the opportunity.

Can you give us an example?

Data from engineering, operations, and maintenance are already being collected in a variety of systems today. If these data are brought together in a cloud-based database, intelligent analyses can identify potential that has previously been invisible. For example, think of increasing the predictability of potential outages at a plant. This new digital intelligence saves companies time and money.

What can midsize companies do?

Many midsize companies are afraid of the investments that the introduction of new digital technologies requires. They lack IT experience. Midsize companies need a strong partner who is familiar with the process industry's special requirements and offers the digital solutions that are necessary. They need a partner who also thinks in economic terms and is oriented toward practical operations and results. Midsize enterprises, like all companies, should keep in mind that those who take advantage of digitalization early on will boost their competitiveness. With Bilfinger, that will happen in just six months!

Photos: Stefan Hohloch; Illustration: Bilfinger



10 years of no accidents

100 turnaround projects without a single accident prove that safety has top priority at Bilfinger

SAFE A turnaround project is an exceptional situation. Thousands of employees are in action for several weeks. During these inspections, industrial facilities are tested, serviced, taken apart, cleaned, and overhauled, and individual parts of the facility are replaced. These projects are planned years in advance. In the past ten years, Bilfinger's German maintenance unit has conducted approximately 100 turnaround projects. During the 4.43 million work hours involved, not a single accident has occurred. That's an outstanding record.

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Popular with young professionals: Bilfinger wins top spots in the latest employee rankings

OUTSTANDING Bilfinger is one of the most attractive employers in Germany for young professionals, according to a study by the Berlin-based trendence research institute. It was the Number One company in the ranking of engineering services providers. Bilfinger offers young professionals many different opportunities to join the company in a variety of engineering disciplines within an international environment. Bilfinger was also one of the TOP 30 employers in a survey of young professionals by the Universum employer branding institute.

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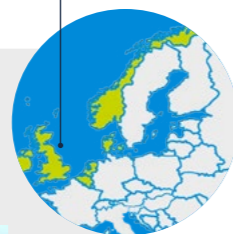


Drones film every corner of a drilling rig, from the crane to the fire tower — without any climbing.

MAINTENANCE, MODIFICATIONS & OPERATIONS

ONLY A DRONE CAN COME THAT CLOSE

UK | NORTHWEST EUROPE



SHORT AND SIMPLE DRONES AT WORK

A drone's daily work routine



You can't see all the damage to a drilling rig at first glance. Off-shore drilling platforms are exposed to wind, rain, and saltwater 24 hours a day. These forces severely corrode platforms and their supply lines, and the damage often occurs in places that are out of sight and hard to reach. But a drone like the Falcon 8 doesn't miss a thing. It delivers high-resolution images of corrosion damage wherever it has occurred. The use of drones for offshore inspection not only reduces risks for employees but also saves time, resources, and costs.

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Photos: Illustration: Bilfinger

SWITZERLAND | CONTINENTAL EUROPE



MAINTENANCE, MODIFICATIONS & OPERATIONS

The right chemistry:
At the pharmaceuticals producer Siegfried, Bilfinger reduces annual maintenance costs by more than

30%

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KUWAIT | MIDDLE EAST



MAINTENANCE, MODIFICATIONS & OPERATIONS

GROWTH IN KUWAIT

Another success in the growth region of the Middle East: Around the beginning of 2018, Bilfinger received orders from Kuwait in the areas of power plants and desalination. The company will conduct maintenance and repair work at the country's Sabiya Power & Water Distillation Station. These facilities are operated by Kuwait's Ministry of Electricity and Water (MEW).

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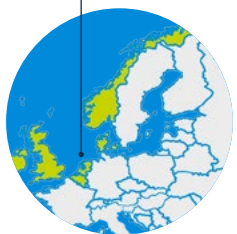


ENGINEERING & TECHNOLOGIES

NETHERLANDS | NORTHWEST EUROPE

ARE YOU READY FOR BIM?

If you expect to be planning a new industrial or production facility in the near future, we recommend that you use BIM. This acronym stands for Building Information Modeling, a digital process for facility planning. When retail customers buy a new kitchen, the standard procedure is to first look at a 3D model. For industrial assets, even 6D models are possible, depending on the available project data. The construction, design, and use can all be assessed in advance. That reduces costs and optimizes planning.



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ENGINEERING & TECHNOLOGIES

USA | NORTH AMERICA

High precision: Laser scanning measures complex industrial facilities down to the millimeter.



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FORMULA FOR THE FUTURE

Bilfinger's corporate strategy can be summed up in a series of numbers: 2-4-6. Bilfinger has two business segments — engineering and digital technologies as well as maintenance, modifications and operations. Our geographic focus is on four regions: Continental Europe, Northwest Europe, North America, and the Middle East. The final number stands for the company's six focus industries.



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